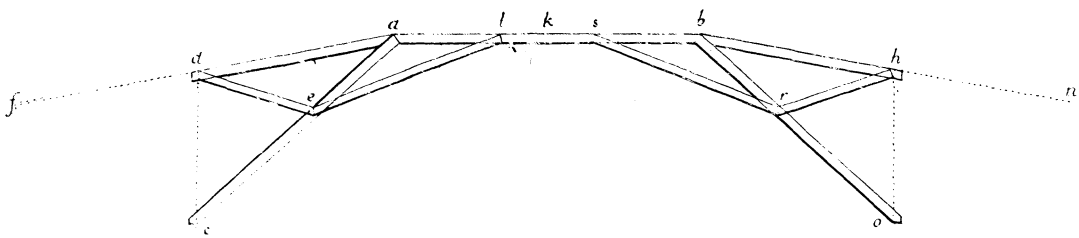
Philosoph. Transact. Number 163.



Exercitatio Geometrica de DIMENSIONE FIGURARUM, *Authore* Davide Gregorio, *in Academia* Edinburgenſi *Matheſcos Profeſſore.* Edinburgi *in* 4°. 1684.

IN this Treatiſe, the Author firſt takes notice of a Treatiſe of his Uncle Mr. *James Gregory* printed at *Padua*, in the year 1667, entituled *Vera Circuli & Hyperbolæ Quadratura*, &c. Wherein he ſhews, that any Sector of the Circle, Hyperbola, or Ellipſe, is, the termination of a certain Converging Series; whoſe two firſt Terms are A and B; whereof A is a Triangle, which, as to the Circle or Ellipſe, is Inſcribed; but, as to the Hyperbola, Circumſcribed, to the ſaid Sector: and B, a Trapezium, which (contrarywiſe) as to the Circle or Ellipſe, is Circumſcribed; but as to the Hyperbola, Inſcribed, to the ſaid Sector: The two ſecond terms, $\frac{1}{3}$AB and $\frac{1}{3+\frac{1}{3}}$AB: the two thirds, in like manner derived from the ſeconds, as theſe are from the firſt. And ſo infinitely, with other things appertaining to the ſame, and to other ſuch like approximations.

He then mentioneth another method, (different from that former) publiſhed at *London*, the year following, by Mr. *Nicolaus Mercator*, in his *Logarithmotechnia*, for ſquaring the Hyperbola, by the help of *Infinite Series*. Approved alſo, and demonſtrated, afterwards, by Mr. *James Gregory*, Apagogically. But, that a General method, for ſuch caſes was yet wanting.

That about the beginning of the year 1670. he underſtood from Mr. *John Collins*, that Mr. *Iſaac Newton* (Profeſſor of Mathematicks at *Cambridge*) had, before that time, a General method for ſuch Quadratures, and other like

like cafes. Whereof (as an Inſtance) Mr. *Collins* ſent him an example, of ſuch an Infinite Series, accommodated to a Circular Zone; namely, if the Radius be R, and the breadth of the Zone B; the Zone is equal to

$$2RB - \frac{B^3}{3R} - \frac{B^5}{2R^3} - \frac{B^7}{56R^5} - \frac{5B^9}{576R^7} - \&c.$$

That Mr. *James Gregory* was in purſuit of like methods of *Infinite Series*; but was prevented by Death; and (beſide ſome particular examples) left nothing in his Papers (yet come to his hands) that might declare his method and way of finding ſuch examples.

That himſelfe (Mr. *David Gregorie*) doth (in this treatiſe make it his buſineſs to explain a method, which may ſuit ſuch examples of his Uncle.

And he doth here aſſume (though in other words) the Doctrine of Indiviſibles, and the Arithmetick of Infinites, as already known; and received by Geometers as ſufficiently Demonſtrated. And applies this to particular caſes, in this manner; Suppoſing a ſtreight line or Axis, which he calls X, cut into parts infinitly ſmall, and the reſpective values of each L (which he calls *Elementum*,) or ſmall part of the Curve, Plain, or Solid which is to be meaſured; anſwering to each of thoſe particles of X; (or at leaſt ſomewhat ſo near the values of L, as that the difference may be neglected; as when a ſhort Subtenſe or Tangent, is taken as coincident with a Curve;) he doth (according to the Doctrine of Infinites) collect the Aggregates of all ſuch L; which Aggregate is the Magnitude ſought.

Of this he gives diverſe examples in Parabola's, Hyperbola's, Ellipſes, Spirals, Cycloids, Conchoids, Ciſſoids, and ſome other Curves, or Curve-lined Figures; as to their Area's, and Curve-lines, with the Solids, and Curve-ſurfaces, made by converſion of them, or otherwiſe derived from them.

Together

Together with divers expedients, or preparative obſervations, (by Diviſion, and extraction of Roots, in Species,) for reducing of implicated quantities (when need requires) into infinite ſeries; thereby rendring them capable of having the method of Infinites applyed to them.

And concludes, with expreſſing his hopes and expectations, that Mr. *Newton's* methods to this purpoſe (long ſince contrived, but not yet publiſhed in Print) will now ſhortly be made publick.

L' Art

L' Art de Tailler, &c. The Art of Pruning Fruit-Trees, *and a* Tract *of the uſe of the* Fruits *of* Trees, *for preſerving us in health, or for curing us when we are ſick. Tranſlated from the* French *Original, ſet forth the laſt year by a* Phyſitian *of* Rochel. *Printed at* London *in* 8°. 1685.

THe Author of this Book, who is a member of the College of Phyſitians at *Rochell*, having taken a particular delight in the Cultivation of Fruit-Trees, and in conſidering the uſe of their Fruits, gives us here the rules which many years experience has taught him on thoſe ſubjects; he conceiving to have herein outdone what any man has yet written on the like occaſion.

The firſt part of this Book, which contains the Art of Pruning or Lopping Fruit-Trees conſiſts of four Chapters, and the Author has caus'd ſeven Figures to be Grav'd, which he judg'd neceſſary for the underſtanding of what he ſays. The firſt Chapter treats of the Lopping of Fruit-Trees for the Month of *February*. The ſecond explains that of the Month of *May*. The third teaches the Lopping for the end of *May*, and for the beginning of *June*. And the fourth comprehends that of *July*.

The Tract of the uſe of fruits has three Chapters, divided into ſeveral Articles: In the firſt Chapter he ſhews the time and the way of uſing Fruits which corrupt eaſily, as Figgs, Nectarins, Peches, Plums, Apricocks, Mulberryes, Cherryes; which ought allways to be eaten, the Stomach empty and before meals. The ſecond treats of thoſe which do not corrupt eaſily, and which ought to be eaten after meals, as Pears, Apples, Portugal Quinces, Medlers, and Services. The third explains how we may eat before or after meals Raiſins, *Portugal* and *China* Oranges,

Oranges, *Spaniſh* Pomegranates, and Corands. Speaking of Raiſins, he tells us of an excellent ſort of drink made of dry'd Raiſins, call'd *Cabal*. They take out the ſtones of fifteen or twenty pounds of Raiſins, and then they bruiſe the Raiſins a little: and in the Month of *January* or *February*; at which time Raiſins are brought them from *Spain*, they put them into a barrel of excellent White-wine to be drank at Eaſter. This Wine, he ſays, will have the colour of Sack, it will be pleaſant to the taſt, and will have qualities not to be Contemn'd: for it lenifyes the breaſt, allays Coughs, helps Reſpiration, and fortifyes the Stomach and Liver, gives an Appetite, ſtops Looſneſs, oppoſes inclinations to Vomit: In a word it is an excellent Remedy for the Dropſy, and it wonderfully agrees with old Men, Valetudinarians, Flegmatick and Melancolick Perſons, and with tender Women. *So far the Author.* It is conceiv'd that if a tryal be made with a like quantity of Raiſins in our Engliſh Beer or Cyder, it may prove no contemtible drink. This book is newly put into Engliſh, and ſold by *Tho. Baſſet* at the *George* St. *Dunſtans* Church in *Fleetſtreet*.

ERRATA.

PAg. 595. l. 18. r *Viviparous* l. 28. r *Baſſenburne*. p. 596. l. 20. r. 1670. p. 598. l. 27. r. 1670. p. 671. l. 19. for *read* r. *tried*. p. 699. l. 1. for *a Journal*, r. *the Journal*. l. 3 for *read*, r *tried*. l. penult. for *wrinkles*, r. *wrinkles*. p. 701. after [*but broken ſi in Separation* add [*the lines of this Figure ſhould have been made to run* ſecundum longitudinem Stomachi, *to repreſent the* Fibres *of the inner* tunic, *running that way, as in B B B B of* Fig. 10. *as they now run, they intimate that thoſe* Fibres *are* circular, *for which there is no foundation in* nature. p. 714. l. 14. r. *lie*.

OXFORD,

Printed at the *THEATER*, and are to be ſold by *Moſes Pitt*, at the *Angel*, and *Samuel Smith*, at the *Princes Arms* in St. *Paul's Church-yard LONDON*, 1684.